

ABSTRACT OF THE DISCLOSURE

A novel isolated surface antigen, which is expressed *in vitro* by spirochetes of *Borrelia garinii* strain IP90, is characterized by a relative molecular mass of 39.5 kDa and the ability to induce antibodies which kill spirochetes of the *B. burgdorferi sensu lato* strain IP90 by ADCK *in vitro*. Novel *B. garinii* cassette string protein or fragments thereof are also useful, as is the P39.5 protein in diagnosing Lyme disease and in compositions for treatment or prophylaxis thereof.